Using Predictive Scoring Systems for Asthma Exacerbations Could Help Safely Conserve Resources During the COVID-19 Pandemic

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A number of clinical scoring systems for asthma management have been described in the literature over the last four decades.[1] These systems are largely used to index severity of disease, quantify changes in disease status, and predict outcomes. Resulting scores can then be used to triage patients and guide therapy. Although they can be very useful tools, scoring systems are not perfect. To create a scoring system, one must create generalized categories of symptoms and ranges of severity. Because asthma is a heterogeneous disease with many causes (and treatments), it is difficult to create a broad system to appropriately score this disease. Moreover, most asthma scoring systems are designed for adult patients and must be modified for pediatric patients.

In this issue of the Journal, Miller et al[2] evaluated the modified Pulmonary Index Score (mPIS), which is a version of the Pulmonary Index that is modified to adjust vital sign parameters for the age of pediatric patients. They have reported that the mPIS at the onset of admission was predictive of length of stay (LOS) in the hospital, LOS in the ICU, and duration of continuous albuterol therapy, similar to findings of previous studies. Several groups at different centers have published findings that the mPIS is predictive of LOS, correlates with disease severity, and is reproducible across groups of health care professionals, supporting the notion that the mPIS may, indeed, be a useful tool when treating pediatric patients experiencing asthma exacerbations.[2–5] However, the observations from these trials may not replicate well at other centers with different patient demographics and asthma exacerbation management

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protocols. More prospective, multicenter studies comparing the mPIS to other scoring systems are warranted.

Miller et al[2] also reported that admission mPIS predicted the need for high-flow nasal cannula and heliox therapy, which generally require an in-patient setting to administer. These findings may be of particular value during the current SARS-CoV-2 pandemic. As many hospitals throughout the world experience periods of census overload from respiratory patients, canonical triage criteria are not effective.[6] We are already seeing an increase in remote treatment and monitoring of respiratory patients worldwide in response to the pandemic.[7] Objective metrics that can predict disease severity, course, and LOS could assist in determining which patients should be admitted and which can be managed effectively as out-patients to protect them from exposure to SARS-CoV-2 and to conserve in-patient resources.

Further studies evaluating the usefulness of mPIS for predicting outcomes in pediatric patients who are experiencing asthma exacerbations would also be beneficial during these times. These benefits could easily expand beyond the pediatric asthma population to all age groups and other patients with exacerbation-prone respiratory diseases, such as cystic fibrosis and COPD. These and other predictive tools could help us safely conserve respiratory health care resources and give the best care we can to our patients as we continue to adapt to the pandemic.

Footnotes

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